

2.7

Solving Equations in One Variable

When we multiply or divide an equation by an expression containing variables, the resulting equation may have solutions that are **not** solutions of the original equation. These are **extraneous solutions**. For this reason we must check each solution of the resulting equation in the original equation.

See pg. 248, Example 1:

Solve $x + \frac{3}{x} = 4$ algebraically.

Multiply equation by $x \rightarrow x^2 + 3 = 4x$

Subtract $4x \rightarrow x^2 - 4x + 3 = 0$

Factor $\rightarrow (x - 3)(x - 1) = 0$

$x = 3$ or $x = 1$

Check solutions and each solution works in original equation. No extraneous solutions here.

See Examples 2, 3 & 4, pg. 249:

See Pg. 250, Example 5 Calculating Acid Mixtures:

Note: (This is set up different from what the book shows.)

$$50(.35) + x(1.0) = (50 + x)(.75)$$

See Example 6: Finding minimum Perimeter

